Attachment 4
White Paper – Catalog Sufficiency Test

Background:
The RTO West stage 2 proposal included a provision for a Catalog Sufficiency Test. The concept envisioned is that RTO West will test the sufficiency of each PTO's catalogued Congestion Management Assets (CMA) by measuring against all of the PTO's CTRs (in the aggregate, not on an individual contract-by-contract basis). This paper describes on a conceptually basis, one possible way to implement such a test.

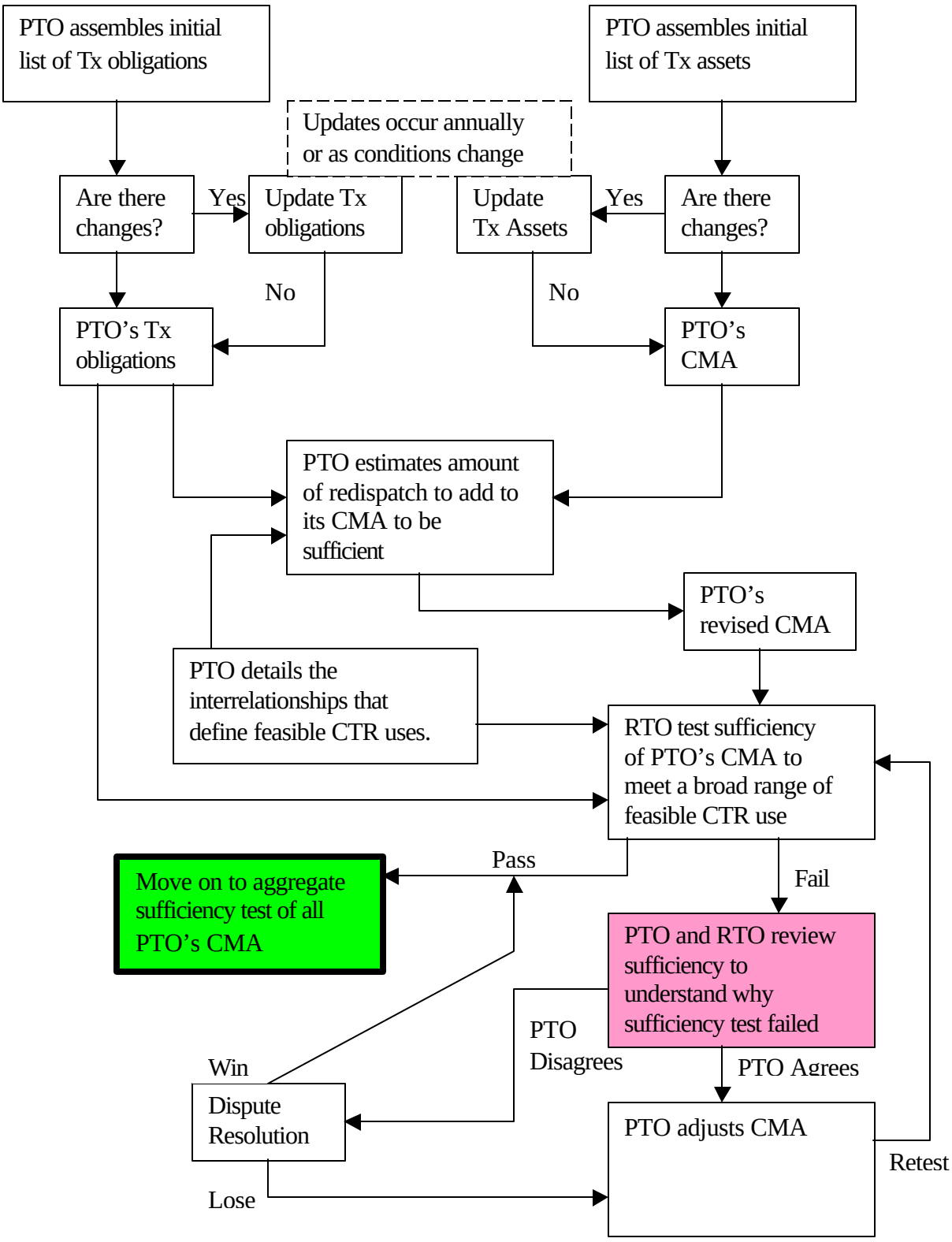
Working Assumptions:
- For individual PTO's sufficiency test, the power flow study would be set up with the PTO's CMA electrically isolated.

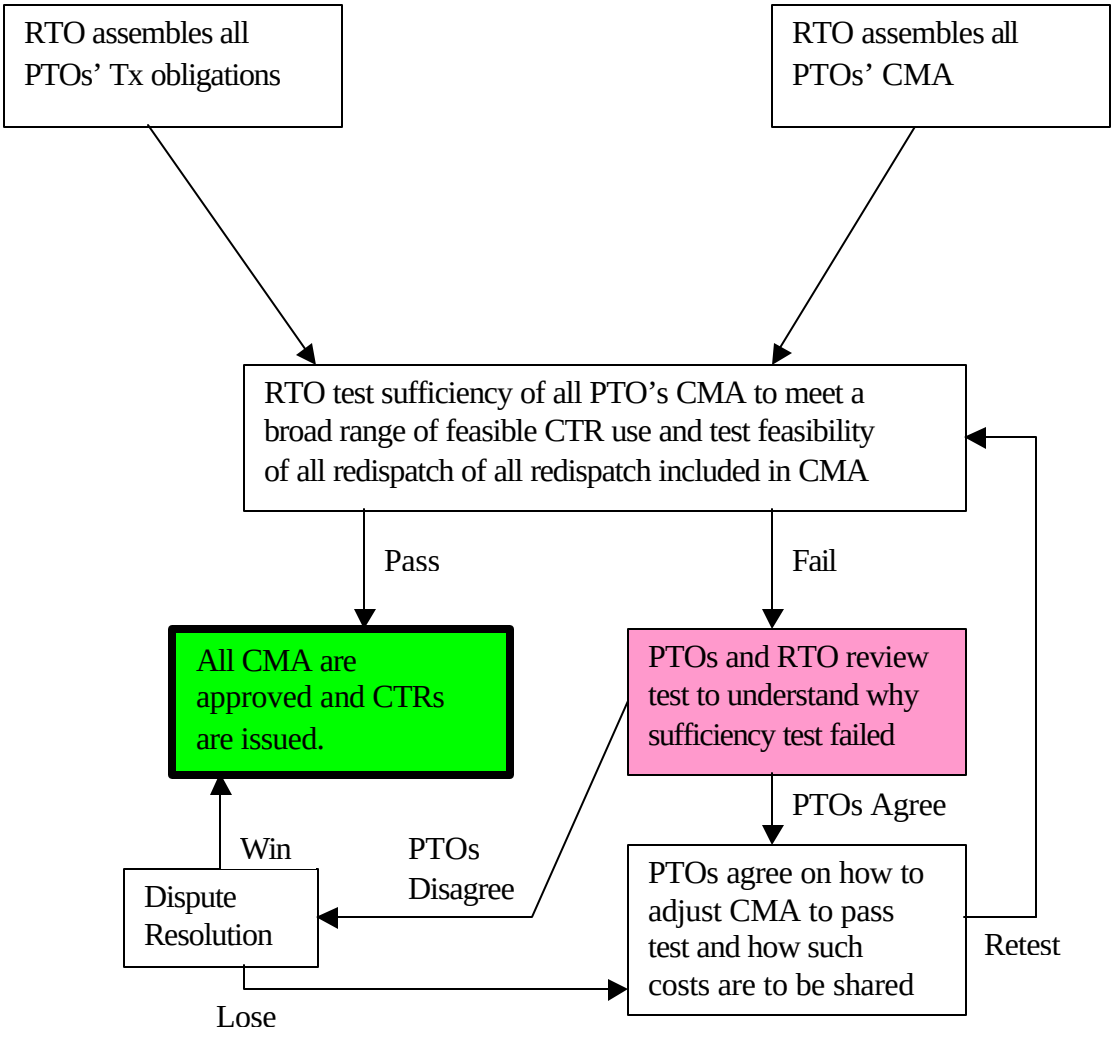
Proposal:
- The sufficiency test will be performed initially at the start of RTO West's operations and then repeated as needed to reflect changes in conditions that may potentially affect the outcome of the sufficiency test. These updates will be timed so that the results will help inform the FTO auction process.
- PTOs assemble their catalog of CMA (transmission facilities, leased transmission facilities, transmission rights on other PTO's system, commitment to provide or secure redispatch, or rights the PTO may have to limit CTR use such as curtailment).
- PTO's assemble their catalog of transmission obligations and identify any conditions that define their feasible use. These conditions may include descriptions of any interrelationship that define feasible CTR use.
- Each PTO's catalogue entries will be periodically updated as necessary to reflect such items as load growth (where provided for in the underlying contract or load service obligation), expiration of contracts, changes in the PTO's CMA, changes to or the exercise of elective rights under pre-existing contracts included in the catalogue, etc. Any errors in cataloguing will be corrected promptly upon discovery by reference to the underlying contract that governs the right.
- RTO West tests the sufficiency of the CMA to meet a wide range of CTR use. The CTR use is based on internally consistent and feasible resource dispatch to meet load over a range of hours across the prospective year.
    - Using a wide range implies a stochastic (probabilistic) approach.
    - The assessment would be done on an aggregate basis using a contract path model (using contract path limits) and will only consider the PTO's CMA.
    - A result of the sufficiency test will be identification of conditions where the CMA is insufficient to meet the feasible CTR use (where redispatch is needed).
- The PTO and RTO West discuss the insufficiency to understand when and to what extent redispatch is needed (either physical or financial). The PTO then revises its CMA to correct the insufficiency.
- Conversely, if RTO West and the CMA reach agreement that the PTO's CMA is sufficient to meet its obligations, the PTO is not at risk for additional redispatch costs beyond that identified in the CMA as long as the CMA remains current.
- RTO West then will test the aggregate of all PTO's CMA (as may be revised in the prior test) to meet the aggregate use of CTRs. This test will also:

  - Use a wide range of CTR use, which implies a stochastic (probabilistic) approach.
  - Be done on an aggregate basis using a security constrained power flow model and will consider all the PTOs' CMA (using the entire grid).
  - Test the feasibility of the redispatch included in the PTOs' CMA (the sum of the base generation dispatch and change in generation from redispatch must be within feasible generation limits).
  - Result in the identification of conditions where the aggregate CMA is insufficient to meet the feasible CTR use (where additional redispatch is needed) [Note – should we add specificity on how to sort out the costs?]
- In the event that the aggregate CMA is insufficient, the PTOs and RTO West will discuss the insufficiency to understand when and to what extent redispatch (either physical or financial) is needed to be sufficient. The PTOs will decide among themselves what redispatch obligation will be made available to RTO West how such costs will be shared amongst the PTOs.

Outstanding Issues:

- There is a chicken and egg timing problem of the PTO needing to know if it will pass the sufficiency test before it signs the TOA and the sufficiency test can't be run until there is a TOA in effect. Also there is an issue of when the sufficiency test is done leaves the PTO's not knowing what their obligations are until much too late in the process.
- Do parallel path flows that exist on other PTO's CMA need to be considered in the sufficiency test?
- Is there really a negotiation between the PTO and RTO West if the sufficiency test does not pass on the first pass? And how will that work on the first test (prior to signing the TOA), who will the PTO negotiate with?
- Since the PTO may elect to take the risk that it's CMA is sufficient, may the PTO self-provide redispatch should it be the case that the PTOs CMA is not sufficient, and the RTO must procure redispatch to honor the PTOs obligations.
- Since redispatch can also be provided by a financial commitment to pay the redispatch costs in real time, does there need to be a separate contract to define the terms and conditions of that commitment? And are there credit issues?
- Should redispatch services that are secure from outside the RTO West footprint be considered as acceptable CMA?
- Should transmission assets of non-PTO utilities be considered in the power flow assessment (internal seams)?


PTO assembles initial list of Tx obligations
PTO assembles initial list of Tx assets
Updates occur annually or as conditions change
Are there changes?
Yes
Update Tx obligations
Update Tx Assets
Yes
Are there changes?
No
No
PTO's Tx obligations
PTO's CMA
PTO estimates amount of redispatch to add to its CMA to be sufficient
PTO's revised CMA
PTO details the interrelationships that define feasible CTR uses.
RTO test sufficiency of PTO's CMA to meet a broad range of feasible CTR use
Pass
Fail
Move on to aggregate sufficiency test of all PTO's CMA
PTO and RTO review sufficiency to understand why sufficiency test failed
PTO Disagrees
PTO Agrees
Win
Dispute Resolution
Lose
PTO adjusts CMA
Retest


RTO assembles all PTOs' Tx obligations
RTO assembles all PTOs' CMA
RTO test sufficiency of all PTO's CMA to meet a broad range of feasible CTR use and test feasibility of all redispatch of all redispatch included in CMA
Pass
Fail
All CMA are approved and CTRs are issued.
PTOs and RTO review test to understand why sufficiency test failed
PTOs Agree
Win
PTOs Disagree
Dispute Resolution
PTOs agree on how to adjust CMA to pass test and how such costs are to be shared
Retest
Lose